WE CLAIM:

1. A zinc coated high strength steel product comprising a hot-dip zinc coating applied to at least one surface of a high strength steel sheet, the composition of said hot-dip zinc coating consisting essentially of by weight percent;

   iron less than about 1.0%;

   molybdenum less than about 0.002%;

   aluminum between about 0.3 and 0.6%; and

   manganese between about 0.01 and 0.10%.

2. The invention recited in claim 1, the composition of said high strength steel sheet consisting essentially of by weight percent;

   carbon between about 0.05 and 0.12%,

   manganese between about 1.0 and 1.6%,

   phosphorus up to 0.04%,

   sulfur up to 0.02%,

   silicon up to 0.10%,

   molybdenum between about 0.15 and 0.35 %,

   aluminum between about 0.01 and 0.08%, and

   the balance being iron and incidental impurities.

3. The invention recited in claim 1 wherein said high strength steel sheet has a galvanized coating applied to at least one surface thereof, the composition of said galvanized coating consisting essentially of by weight percent;

   iron between about 0.2 and 1.0%,

   molybdenum less than about 0.0005%,

   aluminum between about 0.3 and 0.6%, and

   manganese between about 0.01 and 0.10%.

4. The invention recited in claim 1 wherein said high strength steel sheet has a galvanneal coating applied to at least one surface thereof, the composition of said galvanneal coating consisting essentially of by weight percent;

   iron above about 8.0%,

   molybdenum less than about 0.035%,

   aluminum between about 0.15 and 0.30%, and

   manganese less than about 0.160%.

5. The invention recited in claim 4, the composition of said galvanneal coating consisting essentially of by weight percent;

iron above about 8.0%,

molybdenum between about 0.015 and 0.025%,

aluminum between about 0.15 and 0.30%, and

manganese between about 0.145 and 0.160%.

6. A fully hard worked and zinc coated high strength dual phase steel having a conventional hot-dip zinc coating applied to at least one surface thereof, the composition of said high strength dual phase steel consisting essentially of by weight percent;

carbon between about 0.05 and 0.12%;

manganese between about 1.0 and 1.6%;

phosphorus up to 0.04%;

sulfur up to 0.02%;

silicon up to 0.10%;

molybdenum between about 0.15 and 0.35 %;

aluminum between about 0.01 and 0.08%; and

the balance being iron and incidental impurities;

the composition of said conventional hot-dip zinc coating applied to at least one surface thereof consisting essentially of by weight percent;

iron less than about 1.0%;

molybdenum less than about 0.002%;

aluminum between about 0.3 and 0.6%; and

manganese between about 0.01 and 0.10%.

7. The invention recited in claim 6 wherein said high strength steel sheet has a conventional galvanized coating applied to at least one surface thereof, the composition of said conventional galvanized coating consisting essentially of by weight percent;

iron between about 0.2 and 1.0%;

molybdenum less than about 0.0005%;

aluminum between about 0.3 and 0.6%; and

manganese between about 0.01 and 0.10%.

8. The invention recited in claim 6 wherein said high strength steel sheet has a conventional galvanneal coating applied to at least one surface thereof, the composition of said conventional galvanneal coating consisting essentially of by weight percent;

iron above about 8.0%,
molybdenum less than about 0.035%,
aluminum between about 0.15 and 0.30%, and
manganese less than about 0.160%.

9. The invention recited in claim 8, the composition of said conventional galvanneal coating consisting essentially of by weight percent;

iron above about 8.0%;
molybdenum between about 0.015 and 0.025%;
aluminum between about 0.15 and 0.30%; and
manganese between about 0.145 and 0.160%.

10. The invention recited in claim 6 whereby said conventional hot-dip zinc coating is applied in a conventional galvanizing line.

11. The invention recited in claim 8 whereby said conventional galvanneal coating is applied in a conventional galvannealing line.

12. A fully hard worked and zinc coated high strength dual phase steel product having a conventional hot-dip zinc coating applied at least one surface thereof in a conventional galvanizing line, the composition of said high strength dual phase steel consisting essentially of by weight percent;

carbon between about 0.05 and 0.12%,
manganese between about 1.0 and 1.6%,
phosphorus up to 0.04%,
sulfur up to 0.02%,
silicon up to 0.10%,
molybdenum between about 0.15 and 0.35 %,
aluminum between about 0.01 and 0.08%, and
the balance being iron and incidental impurities;

the composition of said conventional hot-dip zinc coating applied to at least one surface thereof consisting essentially of by weight percent;

iron less than about 1.0%,

molybdenum less than about 0.002%,

aluminum between about 0.3 and 0.6%, and

manganese between about 0.01 and 0.10%.

13. The invention recited in claim 12 wherein said conventional hot-dip zinc coating is a galvanized coating applied in a conventional galvanizing line, the composition of said galvanized coating consisting essentially of by weight percent,

iron between about 0.2 and 1.0%,

molybdenum less than about 0.0005%,

aluminum between about 0.3 and 0.6%, and

manganese between about 0.01 and 0.10%.

14. The invention recited in claim 12 wherein said applied conventional hot-dip zinc coating is a galvanneal coating applied in a conventional galvanneal line, the composition of said galvanneal coating consisting essentially of by weight percent;

iron above about 8.0%,

molybdenum less than about 0.035%,

aluminum between about 0.15 and 0.30%, and

manganese less than about 0.160%.

15. The invention recited in claim 14, the composition of said galvanneal coating consisting essentially of by weight percent;

iron above about 8.0%,

molybdenum between about 0.015 and 0.025%,

aluminum between about 0.15 and 0.30%, and

manganese between about 0.145 and 0.160%.

16. In a process for coating low and ultra low carbon cold rolled steel materials with a zinc coating by first heating a fully hard cold worked steel material in a galvanizing line multi-zone reducing atmosphere furnace having a controlled furnace temperature between 760 and 820°C, and then immersing the heated steel material in a zinc-containing molten bath to produce a zinc coated steel product, the steps of the improved process comprising:

a) maintaining the same multi-zone reducing atmosphere furnace condition;

heating a high strength dual phase steel sheet in said multi-zone reducing atmosphere furnace;

c) applying a hot-dip zinc coating to at least one side of said steel sheet;

d) cooling said hot-dip zinc coated steel sheet to manufacture a zinc coated steel product having a zinc coated surface composition consisting essentially of by weight percent;

iron less than about 1.0%;

molybdenum less than about 0.002%;

aluminum between about 0.3 and 0.6%; and

manganese between about 0.01 and 0.10%.

17. The zinc coated steel product manufactured according to the process of claim 16, the composition of said high strength dual phase steel sheet consisting essentially of, in weight percent;

carbon between about 0.05 and 0.12%,

manganese between about 1.0 and 1.6%,

phosphorus up to 0.04%,

sulfur up to 0.02%,

silicon up to 0.10%,

molybdenum between about 0.15 and 0.35 %,

aluminum between about 0.01 and 0.08%, and

the balance being iron and incidental impurities.

19. A zinc coated steel product manufactured according to the process of claim 16, wherein said zinc coated surface is a galvanized coated surface, the composition of said galvanized coated surface consisting essentially of by weight percent;

iron between about 0.2 and 1.0%,

molybdenum less than about 0.0005%,

aluminum between about 0.3 and 0.6%, and

manganese between about 0.01 and 0.10%.

20. The process according to claim 16 including:

e) annealing said hot-dip zinc coated steel sheet, and

f) cooling said galvanneal coated steel sheet to manufacture a zinc coated steel product having a galvanneal coated surface composition consisting essentially of by weight percent;

iron above about 8.0%,

molybdenum less than about 0.035%,

aluminum between about 0.15 and 0.30%, and

manganese less than about 0.160%.

21. A zinc coated steel product manufactured according to the process of claim 20, the composition of said galvanneal coated surface consisting essentially of by weight percent;

iron above about 8.0%,

molybdenum between about 0.015 and 0.025%,

aluminum between about 0.15 and 0.30%, and

manganese between about 0.145 and 0.160%.